--41. The article of manufacture of Claim 38, wherein the polyethylene is high density polyethylene.--

REMARKS

Reconsideration of the outstanding Office Action is respectfully solicited.

The rejected claims 1-7 and 10-25 have been cancelled. New claims are directed to pipes and pipe couplings and are based on Claims 18 et seq, now cancelled. Specifically, Claim 26 is based on Claim 18; Claims 27-30 are based on claims 3-6, respectively. Claims 31-34 are based on Claims 12, 13, 16 and 2. Claims 35-41 are respectively directed to subject matter of Claims 21, 22, 24, 15, 17, 23, and 25.

The claims presented herein are novel over the new prior art [to Takeda, Park and Akiyama) and also to Jenkins, none of which describes pipes or pipe couplings. The claims are also novel over Wooster, as Wooster does not disclose specifically adding less than 1 part per 100 by weight of talc. The MPEP Section 2131 dictates that a reference is not available to establish anticipation unless that reference describes each and every recitation of the claim.

Regarding obviousness, reference is made once again to the Declaration of Andre Scheelen filed on 29 August 2001. From this it is shown clearly that the addition of less than 1 part per 100 by weight of talc has particularly beneficial effects on the properties of pipes or pipe couplings, compare with either adding none or with adding more. Tha much has been previously discussed and acknowledged by the Examiner. This ;benefit is not suggested in any of the prior art: there is nothing to indicate to the skilled person that

adding less than 1 wt % of talc to a pipe composition would have such a beneficial effect on the pipe properties, and accordingly there would be no incentive to do so.

1. SUBJECT MATTER OF THE PRESENT INVENTION

The Claims are directed to pipe and pipe couplings per se formed from polyethylene containing less than 1 part by weight of talc per 100 part PE. Claims 31-32 are directed to extruding or injection shaping pipes or pipe couplings.

The present claims recite polyethylene-based compositions comprising a very small amount of talc, i.e. less than 1 part by weight of talc per 100 parts by weight of polyethylene.

Applicants have found that the addition of such a small amount of talc to polyethylene compositions provides compositions with improved resistance to hydrostatic pressure and a markedly improved creep resistance (page 1, lines 21-23). The addition of small amounts of talc, of less than 1 part by weight per 100 parts by weight of high density polyethylene, provides compositions which make possible the manufacture of shaped articles, such as pipes, for which the **creep resistance is significantly improved without affecting the other mechanical properties of the said shaped articles, such as the resistance to the slow propagation of cracks** (stress cracking of ESCR) (page 2, lines 9-15). Consequently, the resins are very suitable for the manufacture of high pressure pipes (see application, page 1, lines 15-23).

The unexpected results were clearly demonstrated by the comparison of Example 1 (according to the invention) and Comparative Example (see Table I at page 8).

These unexpected results were not disclosed, not suggested by the applied prior art.

2. The TAKEDA reference [U.S. 4847150]

The reference relates to **foams**. Please see the ABSTRACT and column 1 lines 5-10. At column 9, Takeda indicates that the foams of that invention do not have surface skins and thus laminates of the foam and corrugated fiberboard are superior to those prior to Takeda.

The Takeda foams comprise both poly styrene [particularly butadiene styrene block copolymer(s)]and polyethylene. As can be seen from the disclosure of column 1 lines 25-67, Takeda sought to use the best characteristics of each of the two polymeric components.

The disclosure of Takeda et al column 4 refers to a large group of nucleating agents which include talc.

3. Akiyama U.S. Patent No. 4,806,293

This reference, like Takeda, relates to the production of **foams**, and more specifically to a method for the production of foams. The compositions are not described with particularity. Rather Akiyama states that any thermoplastic material may be employed.

Applicants note that Akiyama suggests that along with dichlorotetrafluoroethane and/or dichlorodifluoromethane either some talc or no talc et al can be used in the composition to be foamed.

4. JENKINS ET AL.

Applicants respectfully traverse the rejection of the claims over Jenkins et al.

Jenkins et al. relates to **films**. Accordingly, Jenkins et al. does not suggest compositions for making pipe and pipe coupling of Claims 26 et seq.

The compositions of Jenkins are completely different from those of the rejected claims **which recite contents of less than 1 part of talc per 100 part of polyethylene.**

Specifically, Jenkins et al. discloses compositions containing

- from about 50 to about 95 weight percent of HDPE,
- from about 5 to 40 weight percent of polyisobutylene, and
- **from about 1 to 30 weight percent** of a filler, **such as talc**.

The content of talc in the Jenkins' compositions does not overlap with the range in the rejected claims and is expressed differently, ie., from about 1 to 30 weight percent of a filler such as talc.

By way of explanation it is noted that, the theoretically disclosed compositions of Jenkins et al containing the maximum of HDPE (i.e. 95wt % of HDPE) and the minimum of talc (i.e., 1 wt % of talc) have an amount of talc which is (1/95) x 100= **1.05 part of talc per 100 parts of HDPE**. [Parenthetically, and in response to the previous USPTO allegation at page 3 second full paragraph, if Jenkins disclosed compositions containing more than 1 part of talc per 100 parts of HDPE (indeed 99/95) x 100 = 1.04 parts of talc per 100n parts of HDPE].

The compositions of Claim 1 and Claims 2, 3 and 5 are not only novel in view of Jenkins, as:

- in the present invention: less than 1 part of talc is used per 100 parts of PE, and
- in Jenkins: at least 1.05 parts of talc per 100 parts of PE, is used.

but also the claims are unobvious over Jenkins. The only suggestion in Jenkins et al is to dilute the polyethylene in the Jenkins et al compositions with talc. The Jenkins et al

description does not advise whether such a dilution has a positive or negative effect --- or any effect at all --- on the mechanical properties of the resultant blend or admixture. Jenkins et al provides no description that talc inclusion improves physical properties of the PE, at the amounts Jenkins et al. employs. Indeed, Jenkins et al. only claims the use of talc as a filler. The main property of a filler is to add weight to a resin (so that the resin costs less). If adding weight is the suggestion to be gleaned from Jenkins et al, -- and dilution of the PE for economic gain--and that is the only express suggestion available from the Jenkins et al written description--a person skilled in the art would not logically deduce that adding less than 1 part per 100 parts of PE flowed from the written description of Jenkins et al.

In view of Jenkins et al., there is no motivation for one skilled in the art to use such a small amount of talc in polyethylene based compositions.

To overcome the failures of Jenkins, the Office Action suggests that, apparently notwithstanding the absence of an overlap of the ranges, "Since Jenkins et al. teach talc merely used as a filler, it would have been obvious to one having ordinary skill in the art to have used less filler if e.g. manufacturing costs were not an issue." Page 7, second paragraph. However, this argument is problematic for at least the following reasons.

First, the suggested modification of Jenkins apparently relies on impermissible hindsight based on the disclosure of the present application; in the present application it has been determined that talc in the claimed range unexpectedly enhances creep resistance. See Examples, Table I, and page 8, ln 1-5. The possibility that manufacturing costs are not an issue is not suggested by Jenkins. Accordingly, since no other

motivation is cited by the Office Action and since Jenkins lacks any such motivation, the only possible basis for the asserted motivation is impermissible hindsight.

Second, Jenkins provides the opposite motivation to that suggested in the Office Action. That is, the apparent motivation of Jenkins is to use "fillers" to reduce manufacturing costs. In other words, Jenkins teaches away from the suggested modification and, accordingly, fails to establish a *prima facie* case of obviousness against the claimed invention.

Third, even if the suggested modification was supported by a reference, one skilled in the art would still not find the claimed invention obvious based on the disclosure of Jenkins. Specifically, as suggested by the Office Action, if manufacturing costs were not an issue, one skilled in the art relying on Jenkins would not use talc at all. Accordingly, because the proposed modification would render Jenkins unsatisfactory for its intended purpose due to the absence of filler, there is no suggestion or motivation to make the proposed modification. See *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984). Furthermore, in this light, Jenkins would be read not to have any talc and, thereby, would not teach or suggest the claimed range.

Fourth, even if the modification of Jenkins was within the skill of the art, this is not sufficient to establish a *prima facie* case of obviousness without some objective reason to modify the teachings of the reference. See *Ex parte Levengood*, 28 USPQ2d 1300 (Bd. Pat.App. & Inter. 1993).

For at least the reasons above, the rejections of claims collectively and individually are traversed. In addition, the claims are believed to be independently allowable.

Jenkins teaches talc generally as a filler but does not teach or suggest that the talc has a lamellar texture.

5. WOOSTER ET AL.

The Applicants respectfully traverse the rejection of Claims 1 - 15 over Wooster alone under 35 U.S.C. 103.

Wooster does refer to the inclusion of additives in a molded material, specifically stating that:

> Although generally not required, the molded material of the present invention can also contain additives to enhance antiblocking and coefficient of friction characteristics including, but not limited to, untreated and treated silicon dioxide, talc, calcium carbonate, and clay, as well as primary, secondary and substituted fatty acid amides, release agents, silicone coatings, etc. Still other additives, such as quaternary ammonium compounds alone or in combination with ethylene-acrylic acid (EAA) copolymers or other functional polymers, can also be added to enhance the antistatic characteristics of the polyethylene material of this invention. (Col. 14, lines 22-33.)

However, the reference in Wooster to the inclusion of talc is only a general one. Accordingly, Applicants respectfully assert that Wooster fails to render the claimed invention obvious for at least the following reasons, and is thus cumulative to Jenkins et al.

Wooster fails to provide any teaching or suggestion with respect to the selection of talc from the broad category of additives and the (infinitely) large number of identified compounds. Wooster teaches an open ended set of at least ten independent categories of additives for antiblocking and friction characteristics. Specifically, (1) untreated silicon dioxide, (2) treated silicon dioxide, (3) talc, (4) calcium carbonate, (5) clay, (6) primary

fatty acid amides, (7) secondary fatty acid amides, (8) substituted fatty acid amides fatty acid amides, (9) release agents, and (10) silicone coatings. It is noted that at least categories (6) - (10) represent essentially unlimited numbers of components.

Wooster et al. does not teach that talc has a beneficial effect on the resistance to hydrostatic pressure or creep resistance.

In order to establish a *prima facie* case of obviousness, some motivation to select among the (infinitely) large number of additives must be taught or suggested by the reference. See *In re Duel*, 51 F.3d 1552, 1558-9 (Fed. Cir. 1995). Wooster lacks any such motivation for selection and, accordingly, fails to render obvious the claimed invention. Wooster, rather than providing incentive, leads away in the sense that Wooster suggests there is no advantage in using talc in the Wooster polyethylene blends

Second, Wooster fails to teach or suggest a means for selecting the talc content of the claimed invention. In particular, Wooster teaches that, **although not generally required**, additives to enhance antiblocking and coefficient of friction characteristics **can** be added to the compositions (col. 14, lines 22-29). Talc is cited (in a long list of compounds) as being such an additive. Enhancing antiblocking or coefficient of friction characteristics is not an issue of the present invention. These are typical characteristics for **film manufacturing** processes. Moreover, there is also no relation between antiblocking or coefficient of friction characteristics and resistance to hydrostatic pressure or creep resistance.

The Office Action asserts that, based on Wooster, "it would have been obvious to one having ordinary skill in the art to have included the talc in an effective amount to have imparted antiblocking and coefficient of friction characteristics." Page 8, last full

paragraph. Assuming for the sake of argument that this statement is accurate, it is nevertheless irrelevant to the composition of the present invention wherein the identification of the claimed talc range is based on the unexpectedly determined enhancement to creep resistance. See Examples, Table I, and page 8, lines 1-5. Accordingly, Wooster fails to render obvious the claimed invention.

Third, Wooster fails to teach or suggest the claimed range of talc. Thus, Wooster provides no enablement for the efficacious use of additives in the Wooster polyethylene bends nor enablement for applicants claimed composition. The Office Action asserts that "The determination of such [effective] amount of talc to impart such [antiblocking and friction] characteristics is deemed to be routine optimization and well with in the level of skill of the ordinary artisan." Page 8, last full paragraph. However, as discussed above, Wooster's teachings with respect to antiblocking and friction differ from the parameter of creep resistance on which the claimed range is based. Similarly, the statement in the Office Action that it would have been obvious to use "more or less of the talc additive if manufacturing costs were of an issue" is not relevant as the issue disclosed in the specification on which the claimed range is based is creep resistance. Moreover, the argument is essentially an 'obvious to try' rationale. Accordingly, the basis is impermissible to support a *prima facie* case of obviousness. See *In re O'Farrel*, 853 F.2d 894, 900 (Fed. Cir. 1986).

One skilled in the art desiring to improve the resistance of HDPE pipes to hydrostatic pressure so that they can be used under high pressure is not motivated to use a teaching relating to the improvement of the antiblocking properties of films. For at least the above reasons, the rejections are respectfully traversed.

Reconsideration and withdrawal of the pending rejections is respectfully solicited.

Respectfully submitted,

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